MARYLAND DEPARTMENT OF THE ENVIRONMENT

1995 Ozone Season Report

During the summer of 1995, Maryland experienced the most unhealthful levels of ground level ozone, or smog, since 1988. Although the summer's weather got off to a slow start, it came back with a vengeance as a mid-July heat wave that recorded 25 straight 90 degree days stretched into late August. This was part of the same heat wave that contributed to over 700 deaths across the eastern half of the United States. According to the August 30, 1995 Daily Environment Report "the national ambient air quality standard was exceeded in more than 50 cities this summer due to higher than normal temperatures...". In Maryland, the standard was exceeded on 14 days. Maryland and New Jersey tied for the dubious honor of recording the most violations of all states east of the Mississippi. Some of the highlights and low points of the 1995 season include:

- Surface ozone was recorded at the highest levels since 1988.
- The federal health standard for ozone was exceeded on 14 days this season; Maryland has averaged 15 violation days per year between 1985 and 1995.
- For the second straight year, next day ozone conditions were forecast accurately (about 85% of the time) by state meteorologists.
- A first round of nitrogen oxide reductions from power plants was implemented. Nitrogen oxide emissions contribute to Maryland's ozone problem and, when washed from the sky, significantly pollute the Chesapeake Bay.
- Other control programs already in place continue to reduce emissions and the risks to human health and Maryland's environment.
- An animated Ozone Pollution Map showing the daily formation and movement of ozone was, for the first time ever, displayed on local television stations in the Baltimore and Washington areas. The Ozone Pollution Map was developed by Maryland Department of the Environment and the

American Lung Association of Maryland.
- Research showed that levels of ozone and ozone-forming pollutants coming into the Baltimore/Washington area from other parts of the country, particularly the Mid-west, substantially increase ozone concentrations throughout the region.

This means measures being taken to reduce ozone in Maryland are working, but to meet federal standards, a program for addressing pollution coming into the Baltimore/Washington region must be developed. Until that occurs, it is impossible to determine whether additional emission reductions within the region will be needed.

What happened this summer?

The National Ambient Air Quality Standard for ozone of 120 parts per billion (ppb) was exceeded 14 times during the summer of 1995. These were the most hazardous levels of ozone recorded since 1988. All of Maryland's 15 air monitors recorded levels above the standard at some time during the summer.

Maryland had the most exceedance days in the Northeast for the second consecutive year. Although this year, New Jersey also experienced 14 days above the standard. The highest levels of ozone were recorded during the heat wave of mid-July. A persistent weather pattern conducive to ozone buildup lasted several days. Violations occurred on four days. A meteorological "conveyor belt" carried ozone from Washington to Baltimore and north during the day, only to have that same ozone, now mixed with ozone produced in the north and west, returned at night.

On July 15, this recirculation of ozone resulted in a maximum of 179 ppb being recorded with nine monitors violating across the state. Most of the remaining monitors hovered just under the standard. The monitor that historically records the highest ozone values under these conditions was not operating during this event. Even higher levels than 179 ppb may have been recorded had this monitor been operating.

Despite the number of days above 90 degrees F, Maryland did not experience the number of exceedances one might expect. In the past, the same meteorology which produced high temperatures also produced high ozone. In the mid to late 80's, when the weather was hot (above 90 degrees F) the Baltimore-Washington region would more often than not record violations of the ozone standard. In the 90's, this changed. The gap between hot days and ozone violations has increased considerably, indicating that control programs are working.

This general downward trend in bad ozone days when the weather is hot, can be more easily seen in the graph below. In the early 1980's, the ratio of ozone violation days to hot days was close to one, indicating one violation for almost every day the temperature exceeded 90 degrees F. Now the ratio is less than one to two, indicating that Maryland will experience only one ozone violation day for every two days above 90 degrees F. This decline in ozone exceedances suggest that federal and statewide clean air programs are working and are helping lower ozone levels throughout the region.

When the 1990 Clean Air Act Amendments were passed, Kent and Queen Annes counties were classified as having "moderate" ozone pollution problems and were required to improve air quality by

1996. By the end of this summer, these counties had achieved the federal health standard for ozone because of clean air measures taken over the past several years. The Maryland Department of the Environment has requested that the U.S. Environmental Protection Agency redesignate these counties to "attainment" status.